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Abstract

This paper explores how mobile phones are being used by informal construction workers in Dar es Salaam, Tanzania. It reveals that ownership of mobile phones is stratified along employment lines. This observation acts as a good indicator of what is now perhaps the biggest split in employment in many developing economies: a split between a stratum of employers and middlemen (who in Dar es Salaam's informal construction sector are also mostly using mobile phones), and a stratum of employees, apprentices, family labourers and marginal-owner operators (who are generally not using mobile phones). The applicability of government policy on information and communication technology (ICT) is assessed in the context of these findings. This leads to the suggestion that since Tanzania's small enterprise development policy concentrates on use of the internet, much of this is irrelevant to the majority of informal sector construction enterprises which – when they do use ICT – rely almost exclusively on mobile phones as a significant cost-saving device.

Keywords:

Construction industry; Small-scale enterprises; Informal sector; Information and communication technology; Job creation; Dar es Salaam

Introduction

The highly exclusionary networks of the global economy link only segments of economic structures depending on their usefulness in the 'real time' flow of capital, knowledge and information (UNIDO 2000). From this perspective of informational capitalism, sub-Saharan Africa's economies are largely non-valuable and risk being bypassed completely by flows of wealth and information and shifted to a position of structural irrelevance (Castells 1998; NEPAD Secretariat 2001). Yet while still holding true at the macro-level, these gloomy predictions for the impending Fourth World failed to anticipate that African countries would experience an extraordinary boom in the uptake of new information and communication technology (ICT), especially mobile phones, and increasing rates of access to the internet. In the short term it is unlikely that these in-roads will pose any threat from Africa to the North, but at this early stage it does allow for more reliable communication and access to broader sources of information at the domestic level.

This paper presents the findings of a case study that is part of a research project investigating how, why, and to what affect ICT is being adopted for use in micro and small enterprises (MSEs) across different sectors of a developing economy. Together with this case study into the informal construction sector that is presented here, the findings of the three case studies caution that, despite the huge uptake of mobile phones in particular, some traditional pre-ICT aspects of the African business culture look set to remain for some time. Trust and the need for direct, personal interaction through face-to-face contact – one of the most pervasive features of African MSE economies (Egbert 2004; McCormick 1999:1532; Mungunasi 2000:4.1; Trulsson 1997:132-133) – emerge as a common theme across the case study industries and are likely to remain a crucial aspect of the way most MSE business is conducted (Molony 2007).

This case study considers the use of ICT in the informal construction sector of Tanzania, one of the most rapidly urbanising region in the world (UN-Habitat 2003). It seeks to find out how ICT are being accessed, adopted and appropriated by those who operate within

‘the ordinary economy...that builds most of a nation’s houses, runs most of its transport, makes most of its clothes, and trains most of its young people.’ (King 1990:145). It is interested in ‘real-world’ workers in the informal construction sector who are not directly influenced by donor-assisted projects. Such donor-assisted projects in Africa can be criticised as being artificially produced constructs that tend to represent the extra-ordinary and do not well reflect the reality of the majority, non-assisted African-run enterprises.

Sample and methods

The analysis is based on semi-structured interviews conducted mostly from late June to mid-August 2003 with 19 leaders of groups of workers (and one labourer) who comprise groups operating in the informal construction sector of Dar es Salaam, one of Africa’s fastest growing cities (UN-Habitat 2004)). The informants are broadly representative of informal construction workers in the region, their names having been obtained from a sample population of 26,323 workers identified by the ‘Support for Informal Construction Workers in Dar es Salaam’ (‘STICW-Dar’) project with the United Nations Development Programme, the International Labour Organisation and the University of Dar es Salaam’s Bureau of Industrial Cooperation. Lasting three years, the objective of the STICW-Dar project is to facilitate dialogue between stakeholders and informal construction workers. The project defines an informal construction worker as any ‘individual or group who are not officially recognised by the government nor registered by [its] respective institutions’ (UNV/UNDP 2003), and has a view to protecting and enhancing the position of informal construction workers. The project has now sought to produce and disseminate guidelines for its up-scaling and replication.

The STICW-Dar project created a 5% sample of ‘target beneficiaries’ comprising 42 different groups covering a total of 1,321 workers of different trades. From these a core group of ‘leading beneficiaries’ was selected to represent the ‘target beneficiaries’ at the

project workshops. The selection criteria for the leading beneficiaries group took into consideration the need for representation across trades, gender (with groups with larger numbers of female members being favoured), length of experience in the informal construction industry, interest in the project, and good communication skills.

Spokespersons were then elected by the leading beneficiaries groups to act as their representatives on the project. Despite females comprising 4% of the total identified ICW population (usually as unskilled labourers and female informal sector cooks), all are male.

The 20 informal sector construction workers who were interviewed for the research were chosen from the STICW-Dar project's sample of 'leading beneficiaries'. Ten of the spokesmen were first approached at an inception workshop for the beneficiaries in Dar es Salaam in February 2003 where they agreed to be interviewed at a later date. They were then contacted, along with the remaining groups whose contacts were obtained from the STICW-Dar project leader shortly before the interviews took place. The contacts list broke the 42 groups into municipality location (covering all 3 districts: 9 in Kinondoni, 13 in Ilala, and 20 in Temeke) and gave the group name and in most cases a contact mobile phone number, but no further details. Of the 42 groups in the original contacts list obtained from the project leader, phone numbers were not provided for 11 (although one was obtained later), two did not answer the phone after repeated attempts, for 9 groups the number was not in operation (possibly because it had expired), and one ICW was not interested in being interviewed, citing dissatisfaction with the STICW-Dar project. Other than *Walindila Kijiwe* group (where no leaders were available), the remaining 20 groups who could be contacted all agreed for a senior representative of the group to be interviewed, and this person usually emerged to be the leader of a group of workers. The leaders described their own primary skill as: carpenter (3); concreter; electrician; engineer; general builder (6); glazier; labour; materials supplier (2); painter; plumber; and welder. During the semi-structured interview, group leaders were asked to draw their own comparisons between the traditional pre-ICT situation and the improved ICT access of today. These replies, and observation through physically tracing the marketing of

construction services, were then used as empirical evidence with which to assess how work-group leaders communicate with each other in business, and the role that new ICT plays in these interactions.

The informal construction sector in developing countries

While it is difficult to present precise figures on the scale of the informal sector, it is widely accepted that it is gaining in importance worldwide (Commission for Africa 2005;; Hussmanns & du Jeu 2002;; ILO 2002b). Tanzania is no exception, with the total number employed in the informal sector at just under 3million, a figure that is more than double the formal sector in terms of those engaged in governmental and parastatal and 'other private' employment. Almost half of those working in the informal sector are doing so in urban areas, with Dar es Salaam accounting for 30% of the total urban informal sector workforce (United Republic of Tanzania 2002a), a noticeable rise from the last survey (United Republic of Tanzania 1995).

In the context of limited employment growth in the formal construction sector, an increasing number of these new urban job seekers go to the informal sector and, traditionally, the construction industry (Wells & Wall 2001;; 2003). In essence the informal construction sector, as a component of the informal sector, bears similar characteristics and constraints to the rest of the informal sector, including, *inter alia*, a scarcity of markets; lack of registration, working capital, tools, transport and adequate working premises; unfairly low payment and poor technical and business skills. The essence of informal construction sector informality, however, is the absence of regulation, with a gradation rather than hard and fast dividing lines between the formal and the informal (Wells 2007).

The definition of the informal construction sector used for the purposes of this study is a stripped down version of that adopted by the First Meeting of the International Council

for Research and Innovation in Building and Construction 'Task Group 29' in Arusha, Tanzania in 1998, and is said to embrace, small, unregistered and/or unlicensed enterprises and individual, unprotected workers operating within the building construction sector, which includes building materials but excludes civil engineering. Nevertheless, it is worth noting that there have more recently been calls (Mitullah & Wachira 2003:7) to change the focus of the object of analysis to be in line with recent changes in focus on employment status (ILO 2002a) rather than the enterprise. This is because under the prevalence of outsourcing through labour subcontractors in the construction industry (ILO 2001) it is often the 'formal' employer – not the informal operator – who seeks to avoid his legal obligations (specifically registration and taxation), at the expense of the individual coming from the informal sector (English 2002; WIEGO 2002).

Tanzania's informal construction sector is growing and contributes significantly to the economy (Mlinga 2000; United Republic of Tanzania 1991). The latest figures (for the period 1991-95) show that Total Gross Output, Total Value Added and Total Capital Formation are all increasing, by 185%, 244% and 173% respectively (Mlinga & Lema 2000:8). Figures are now available on employment in *secondary activities* which effectively double the size of the workforce in the informal construction sector – even before tertiary activities are taken into consideration. As well as contributing towards some of the city's highest quality developments (Wells 2001), the informal construction sector is showing itself adept at meeting the change in the taste towards modern housing that, compared with traditional *swahili* house built using poles, thatch and mud, requires more help to build. The client for these modern houses is usually a private house-owner (Mitullah & Wachira 2003:3; Mlinga & Lema 2000:7) who is building or repairing part of a residence. Irrespective of his or her status, the client increasingly operates within what has been termed the 'informal construction system' (Wells 2001), avoiding the formal construction sector in favour of dealing solely with enterprises (in the form of work gangs) and individuals in the informal sector (Mlinga & Wells 2002).

Work-group structure and mobile phone ownership

Work-group leadership in Dar es Salaam normally consists of a treasurer who oversees accounting when it exists, and a chairman. Although he is a skilled tradesman, the leader will not always carry out work himself but, as discussed shortly, will spend much of his time searching for jobs for the group of workers. The size of the remaining sample groups range from three workers to around 200. If the two large 'labour pool' gangs are removed, then the mean average membership drops from 27 to 12. The work groups cover a wide range of building trades including concreting, plumbing, carpentry, electrical, painting, materials supply, general building. In total 9 out of the 20 informants have previously worked in the formal construction sector on a permanent basis (no = 6; not applicable = 5), while 10 have worked for formal sector contractors on a part-time basis (no = 3; not applicable = 7). Irrespective of group size, only a couple of members in each work group own mobile phones that they use for work, and these members are usually in the leadership of the work-group. No interviewees reported ever using the internet for work. If we exclude the one anomaly group where 18 of the 20 members own mobile phones that they use for work, only 46 work-group members of the 540 total represented in the sample own mobile phones that they use for work.

Communication in the process of finding, securing, and completing work

Finding work

The chances of a work-group getting work are improved if the leader who searches for work is well known in the industry, both in the formal sector where he can increase his chances of getting subcontracts, and in the informal sector where he can obtain work from an acting-foreman or direct from the client on a private job. Since recommendation (closely linked with reputation) seems to be passed by word of mouth (Seekings & Natrass 2005:281), the leader with a mobile phone is still no less reliant on being

acquainted with people who will inform him when opportunities arise. Although not enough is known about on-site networks, it does seem from this research and the work of Mitullah and Wachira (2003) that *off-site* the leader spends time developing his wider 'informal social networks' (Hart 1973:77) for getting work and contracts (Mwami 1991:67, 87-88), or what King has called,

networks of knowledge connecting these new entrepreneurs to markets, to low-cost suppliers, sometimes to their old firms through subcontracts, and to other enterprises. Some of these are as much social as technical or business networks.... (1996:190).

The networks that appear to count are as much social networks as any other, as can be seen in business elsewhere on the continent in ad hoc discussions between white Zimbabweans at sports events and business conferences (Fafchamps 2001) for example, or Asians having a casual conversation at the club or mosque, or a business discussion at a family gathering (McCormick 1997:122). For a gang-leader, however, as well as ensuring he has a good reputation to react to demand when friends or previous customers recommend him or tell him of possible jobs, finding new work is apparently more about chance and in being in the right place and hearing things and reacting to them than about positioning himself in a situation where more likely to be able to exchange information. This research did not study what conversation goes on on-site between tradesmen and groups, but from conversations with artisans and the interviews with gang-leaders it does seem that their network for finding work is open—more keeping their 'ear to the ground' wherever they are and being prepared to follow-up on opportunities (even if these are hear-say or rumour) than it is a business network. As one general builder shows slightly guardedly and with some amusement:

No, I don't have networks of artisans I meet up with to discuss things about the work prospects in Dar es Salaam! [Laughs]. I just get on with work when I have it, and look for work when I don't have it! Life is hard, do you see?

So you don't discuss with anyone how you will get your next job?

That is my business!...[Laughs]...

...How do you do your business?

I talk with people who know about where work is.

And who are these people?

Friends. People I meet in the bars. I keep my eyes open for where [other *mafundi*] are working and where sites are starting. Life in Dar es Salaam is about brains, you know. That's why Dar es Salaam is called '*Bongo*' ['brains']! You have to use your common sense! (Personal communication with Peter Makoye, Mjimwema, Dar es Salaam. 8 July 2003).

Where mobile phones are of help in finding work they make it easier for previous customers to locate the leader, where before – if unsuccessful – they would go to another artisan. They also help when, in recommending a leader, previous customers can pass on his mobile phone number to potential customers. The other big advantage leaders report is that they save time and, crucially, money spent on travelling to communicate with suppliers and employers, from finding work through to completion of the job.

Securing work

When the work-group leader has identified a job, the process of actually winning the 'contract' involves negotiation, during which time his mobile phone takes a more minor role to face-to-face contact. Often in the informal construction system the client appears to show a preference for hiring workers known within his or her personal network of contacts. However, when the prospective contractor is not known to the client and has not been recommended by his or her associates, face-to-face contact is important. The leader can use the opportunity to win the deal by presenting himself as a trustworthy, skilled and experienced artisan: 'the best man for the job' who can arrange everything for the client. Being present with the potential customer also allows the gang leader to assess the job and negotiate on the price (and a cash advance), which can only be done face-to-face. Should the land owner accept, this is then enshrined in a verbal 'gentleman's agreement'.

Completing work

During the project, the mobile phone is important when/if the work-group leader wants to know something from, or confirm something with, the customer that does not require the customer being there – such as the purchasing of further materials if it has been agreed that this is the leader's task. This saves both the client, and again the leader, the costs (of time, and money on petrol) spent having to find each other in the city. Owing to the high cost of using a mobile phone, however, the leader is very careful in choosing when to use it for work and – depending on who he is contacting and for what reason – whether the method of communication is by calling, texting, or 'beeping' (a short, unanswered call, costing nothing and usually signifying a pre-arranged meaning between the caller and recipient). The leader must be *seen* by the client to appear to have money, so he often calls or texts in this situation. He tends to restrict this to calls about one of three reasons: finding a job, getting materials to get the job done, and getting paid for it. In communication with another informal sector construction worker, on the other hand, the unwritten rule seems to be that it is more acceptable to beep to communicate a pre-arranged message or to signal the need to return the beeper's call.

The mobile phone and the informal construction sector: real opportunities?

Besides saving time and, most importantly, money, what real opportunities do mobile phones open up to the leader? Is there really something pedestrian about the additionality of an informal sector operator having a mobile phone? A handbook on ICT for entrepreneurs in developing countries puts the case well:

Mobile phones are particularly suited to business users. They let you answer customer calls immediately, and reach staff or business contacts while you are working away from your business premises. A mobile phone will give you greater flexibility, faster customer response and time savings.... For small businesses, answering a call immediately, rather than responding later, could make the difference between winning or losing an order. If you spend a lot of time away from your business premises, on site or with customers, a mobile phone will allow people to contact you at any time of day (Duncombe & Heeks 2001:19).

The difficulty when reading such literature is that while it does support advantages of the mobile phone that work-group leaders report, the advice exposes many of the fundamentals of running a business that most of this sample (and probably the majority of informal sector operators) lack: such as keeping customers up-to-date. Duncombe and Heeks (2001:18) note that a telephone, for example 'will be particularly useful for keeping customers informed about problems such as late deliveries or production problems'. Nonetheless, this research suggests that this is rarely the case when leaders have not finished orders on time, or are unable to come to work. This may have something to do with a slight 'culture of secrecy' about the entrepreneurs' affairs, or the costs of communication that the leader is so careful to monitor. It may also be simply because many informal sector operators have low levels of marketing and commercial skills, especially when it comes to putting the customer first. Tanzania's nascent *Informal Sector Roadmap Study*, with the example of businesses closing up for several weeks at a time for the operator to attend family functions such as weddings or funerals (UNDP et al. 2004:para.154), sees the general attitude as a socio-cultural constraint hampering business growth. It may take a generation until a more customer-focussed culture is developed, and this can only come through basic business training of the type the Tanzanian government promises in its *Small and Medium Enterprise Development Policy* (United Republic of Tanzania 2002b:17-18).

This research does reveal individuals taking initiative in promoting their businesses to customers through using ICT. One artisan, for example, uses his mobile phone to store the numbers of all his previous customers and calls them periodically to see if they have any work to be done or if they know of other potential customers. Another artisan uses his photograph album as a catalogue for promoting his skill through visual images of his product range. But at no point did any leader have a business card with their group name, trade and space for a mobile phone number to be written (rather than printed on the card, since people commonly change their numbers). Such a simple business card could act as a powerful symbol of the seriousness and professionalism that leaders are so keen to

portray in their manners and appearance when visiting potential clients. These cards can be well-made within the informal sector at minimal cost and handed to customers. The use of business cards is common practice among taxi drivers in Nairobi, but not among their counterparts in Dar es Salaam, nor in many informal sector trades with frequent customer interaction in the city. It reflects poor basic marketing skills that other groups of Tanzanian entrepreneurs outside the informal construction sector seem to have grasped to great affect. This small step for entrepreneurs running MSEs is possible when it is considered that, only a few years ago, mobile phones themselves were unheard of among informal sector operators, yet they are now a part of everyday business.

Nonetheless, we must be careful to note that although mobile phones are increasingly being used in the informal sector – Africa's ordinary economy – this is by a minority at present, with few work-group members other than the leader using a mobile phone for work purposes. Is there evidence of the need for other group members not in the leadership to obtain mobile phones for work? No work-group leaders expressed major problems arising from members not having mobile phones. Since the application of mobile phones within a group is largely towards obtaining work (the leader's task), then there seems little need for others to acquire them for work purposes. This is especially the case given that the price of the handset – let alone the running costs – is still outwith the budget of many informal sector workers; but it does mean that the leader still has to travel to the labour pool pick-up (or site, if they have work) in order to contact the work-group members.

Where the mobile phone may be more useful for members is when they might offer their personal contact number in advertising their individual services for out-of-hours work separate from their main informal sector employment, as the labourer informant for this research reports some other casual labourers may be doing at his labour pool pick-up point. This may be regarded as underhand within the informal sector group and would probably affect group cohesion, but is something one leader admits to doing in order to

undercut his formal sector employer and obtain jobs under the informal construction system.

Irrespective of the source of the communication, it is important that this offer for work is accompanied by delivered promises, reliability and quality work that help the businessman foster a good reputation. One artisan showed how this has enabled him to build a network of wealthy clients who are pleased with his work and pass on their satisfaction to friends. It is likely that the recommendation of the artisan's good work will still travel by word of mouth. For leaders working both autonomously and in subcontracting relationships, and the self-employed within the informal sector more generally, it does appear important to have a contact number too – not least in the savings many leaders report they yield in terms of travel expenses. It is here that critics seeing the mobile phone as offering only a 'pedestrian' benefit to MSEs would do well not to underestimate the power of the new information and communication technology.

The ownership of, or access to, a mobile phone and having business cards displaying the phone number applies more to the self-employed—those who Lugalla (1997) refers to as the 'graduate poor' (who mostly already own mobile phones), and not the 'chronic poor' underclass (Seekings 2003) at the lower end of the informal sector spectrum who lack social capital and to whom mobile phones are unlikely to feature in their list of priorities. Indeed, the stratified ownership of mobile phones along these lines is a good indicator of what is now perhaps the biggest split in employment in many developing economies. No longer the formal-informal dichotomy, it is increasingly the split between a stratum of employers and middlemen (mostly using mobile phones), and a stratum of employees, apprentices, family labourers and marginal-owner operators (generally not using mobile phones), who constitute a majority 'informal proletariat'. The divide is far wider than when Portes et al (1986) made this observation over a decade *before* the rise of subcontracting and the emergence of labour subcontractors/middlemen we increasingly see in the informal construction system.

Government intervention in relation to ICT in business, where it exists, also appears to be aimed at the 'employers and middlemen' stratum, and among them those who use the internet. In the construction industry this seems to be the preserve of the formal sector (in the case of one formal sector contractor, for e-mailing international suppliers and as a source of information on new designs). Although no leaders reported using the internet, the Tanzanian government has plans in its *Small and Medium Enterprise Development Policy* to create a national website for SMEs and a directory of service providers (United Republic of Tanzania 2002b:19). It still remains to be seen what form this takes in order to provide for the majority who will have to rely on government supply of these services, and also whether the purchase and running of ICT can be prioritised over other areas of the budget such as education and healthcare. Nevertheless, it does seem as if the focus on enhancing service provision through e-commerce (United Republic of Tanzania 2002b) will benefit more those entrepreneurs whose connections branch internationally. For the new businessmen in construction and those others located in the 'employers and middlemen' stratum of the informal sector more generally, a local directory listing of MSE phone numbers by trade may be more appropriate, paid for by private advertising much like *The Yellow Pages* in other countries. No such directory exists in Dar es Salaam to cater for the majority informal sector businesses, but if distributed adequately within the industry and to potential customers advertising the services of informal sector enterprises within the neighbourhood, it would go some way towards helping the marketing needs of those operators who rely on waiting for employment opportunities or approaching would-be sources of employment.

Conclusion

This analysis of the communication involved in finding, securing and completing work in the informal construction sector reveals that since small enterprise development policy concentrates on use of the internet, much of this is not relevant to the majority of informal sector enterprises. When informal sector enterprises do use ICT, they rely

almost exclusively on mobile phones as a significant cost-saving device in everyday business communication. It should be noted that although mobile phones *are* increasingly being used in the informal sector, this is only by a small minority at present, with few work-group members other than the leader using a mobile phone for work purposes. Despite having better communication with clients, much business still relies on face-to-face contact, one of the most pervasive features of African MSEs economies (Molony 2007). But whatever the merits of these different forms of communication, many leaders still do not appear to have altered their unbusinesslike and seemingly carefree attitude towards keeping customers informed when prearranged timings cannot be met. Given the low business skills among many MSE operators, and the prohibitive cost of attending business training institutions in Tanzania (United Republic of Tanzania 2002b:18), it is suggested from the findings of this informal construction sector case study that the government's proposed review of school curricula to accommodate entrepreneurship development (United Republic of Tanzania 2002b:17) is of paramount importance and must be more than an unfulfilled policy promise.

We have noted that with the rise of subcontracting the formal-informal dichotomy is being replaced by a new divide between employers/middlemen and employees/marginal-owner operators. These groups are also stratified by application of mobile phones for business, with the former mostly using the devices, the latter generally not. In terms of policy intervention arising from the findings of this study that are applicable to the developing country informal construction sector more broadly, it is suggested that efforts to promote operators should take into consideration that few (if any) use the internet to great affect. For the majority, non-elite operators who are currently using mobile phones as the only ICT in their arsenal, a simple intervention at this stage would be to promote their enterprises by listing their services and mobile phone contact numbers in a neighbourhood directory. If distributed to potential contracting partners within industry and to potential customers within the local area of the city, this practical move could make mobile phones a yet more enabling means of information and communication for future employment in the informal construction sector than they presently are.

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Ethical standards

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